IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

IN RE APPLICATION OF:	Daniel Karpen
SERIAL NO.:	09/096,999
FILED:	June 13, 1998
FOR:	MAGNETICALLY SHIELDED FLUORESCENT LAMP BALLAST CASE
GROUP ART UNIT:	2821
EXAMINER:	D. VU

Commissioner of Patents and Trademarks
Washington, D. C. 20231

APPEAL BRIEF

This is an appeal from the final rejection of the Examiner dated October 28, 1999 rejecting all of the pending claims in the above-mentioned application. This Appeal Brief is accompanied by the requisite fee set forth in 37 C.F.R. §1.17(f).

REAL PARTY IN INTEREST (37 C.F.R. §1.192(c)(1))

The real party in interest is the applicant, Daniel Karpen. This pending application has not been assigned to any other party.

RELATED APPEALS AND INTERFERENCES (37 C.F.R. § 1.192(c)(2))

There are no other appeals or interferences known to appellant, appellant's legal representative, or assignee, which directly affect, or be directly affected by, or have a bearing on, the Board of Patent Appeals and Interferences' decision in the above captioned appeal.

STATUS OF CLAIMS (37 C.F.R. §1.192(c)(3))

The application was filed on February 12, 1996 under Serial No. 08/600,400 with 14 claims. Claims 1 and 7 were the only independent claims.

All of the claims in the preceding parent patent application were rejected in the Examiner's Office Action dated September 4, 1997.

In the Applicant's response thereto dated December 1, 1997, Claims 1-14 were cancelled and new Claims 15-30 were added with Claims 15 and 22 being independent claims.

A Declaration pursuant to 37 C.F.R. 132 was submitted on December 1, 1997.

The Examiner requested in an Office Communication dated January 14, 1998 that a substitute specification be submitted to the Patent and Trademark Office.

The Applicant prepared and transmitted a substitute specification dated January 30, 1998.

All of the pending claims, namely Claims 15 to 30, were rejected in an Office Action dated March 17, 1998. The rejection was made final.

A supplemental 132 Declaration dated May 11, 1998 was submitted to the Patent and Trademark Office.

A Rule 116 Amendment after Final Office Action was filed on June 10, 1998. Claim 1 was amended.

The Examiner rejected the Applicant's response to the Rule 116 Amendment after Final Office Action in an Advisory Action dated June 15, 1998.

The first filed application Serial No. 08/600,400, was continued as a Continuation-In-Part, Serial Number 09/096,999, filed on June 13, 1998, with 16 claims. Claims 1 and 8 were the only independent claims.

All of the Claims were rejected in the Examiner's Office ACtion dated July 6, 1999.

In the Applicant's response dated August 24, 1999, Claim 4 was amended, and amendments were made to the specification.

A 132 and 131 Declaration was filed on August 24, 1999.

All of the pending claims, namely Claims 1-16, were rejected in an Office Action dated October 28, 1999. The rejection was made final.

STATUS OF AMENDMENTS (37 C.F.R. §1.192(c)(4))

A Rule 116 Amendment in Response to Final Office Action was filed on January 28, 2000. Claims 1 and 2 were amended.

Another 132 Declaration, dated December 29, 1999, prepared by Myron Kahn, an expert in the lighting industry with lighting patents of his own, was filed on January 28, 2000.

The Examiner rejected the Applicant's response to the Rule 116 Amendment after Final Office Action in an Advisory Action dated February 9, 2000.

A request for a one month extension to repond to the Office Action dated October 28, 1999 was filed on February 16, 2000.

A Notice of Appeal was filed on February 16, 2000.

SUMMARY OF THE INVENTION (37 C.F.R. §1.192(c)(5))

The present invention is a magnetically shielded fluorescent lamp ballast case (specification, page 1, line 1, title). The invention relates to the shielding of the fluorescent ballasts by using a fluorescent ballast case made of a ferromagnetic material to shield it from the electromagnetic fields, particularly the magnetic component of the electromagnetic fields up to frequencies of about 100 Kilohertz (specification, page 1, lines 10-14, filed June 13, 1998, Serial No. 09/096,999).

Additionally, the fluorescent lamp ballast case may be made of aluminum or steel and lined on the inside or outside with thin ferromagnetic foil alloys (specification, page 1, lines 14-17). The magnetically shielded fluorescent lamp ballast case can be used for both core coil fluorescent lamp ballasts as well as solid state fluorescent lamp ballasts (specification, page 1, lines 19-22).

In the design of the electrical circuit for a fluorescent lamp ballast, a transformer, inductor, or other magnetic components are included in the ballast (specification, page 5, lines 2-5). As noted in the Applicant's specification (page 5, lines 4-7), and as reiterated in the 132 Declaration of Myron Kahn dated December 29, 1999, if a fluorescent lamp ballast contains such components, then alternating current flowing through these components give rise to electromagnetic fields of various frequencies.

In a core coil fluorescent lamp ballast, the magnetic fields are 60 Hertz (specification, page 5, lines 8-9).

There may be multiples of the 60 cycle magnetic fields produced from harmonics in the circuitry (specification, page 5, lines 9-10).

In the last 10 years, the fluorescent lamp ballast industry has been shifting to solid state ballasts (specification, page 5, lines 11-12). These fluorescent lamp ballasts contain rectifier and inverter circuitry (specification, page 5, lines 12-13). The inverter circuit provides alternating current generally between 20,000 Hertz and 50,000 Hertz to drive the fluorescent lamp (specification, page 5, lines 13-15).

Many people working under or near fluorescent lighting may feel tired, fatigued, stressed out, or having headaches, eyestrain, or blurred vision (specification, page 6, lines 10-12). Both the 60 Hertz fields and the 20,000 to 50,000 Hertz fields may affect people (specification, page 6, lines 18-19). It is suspected that field strengths as low as 1 microgauss may affect sensitive individuals (specification, page 6, lines 19-21). Thus there is a need for shielding of the fluorescent lamp ballast case of the fluorescent lamp ballast to attenuate the electromagnetic fields, and in particular, the magnetic component of the electromagnetic fields (specification, page 6, lines 21-24).

ISSUES (37 C.F.R. §1.192(c)(60))

Whether the Examiner's contention that Claims 1-16 are unpatentable because "No sufficient evidence to establish diligence from a date prior to the date of reduction to practice." should be reversed?

Whether the Examiner's contention that Claims 1-16 are unpatentable under 35 U.S.C. §103 over the combination of Blocher and the CO-NETIC references reads on the claim subject matter should be reversed?

GROUPING OF CLAIMS (37 C.F.R. §1.192(c)(7))

Claims 1-7 stand or fall together. Claims 8-16 stand or fall together. Although Claims 1 and 8 are distinctly independent claims, to expedite this appeal, Applicant requests that Claims 1-16 be reviewed together.

ARGUMENT (37 C.F.R. §1.192(c)(8))

With respect to the issue of reduction to practice and due diligence, the Examiner rejected all of the pending claims, namely Claims 1-16, as unpatentable as no sufficient evidence to establish due diligence from a date prior to the date of reduction to practice.

A combined 132 and 131 Declaration with exhibits was filed on August 24, 1999. One of the purposes of this combined 132 and 131 Declaration was to show that the Applicant pre-dated Blocher's filing date (U. S. Pat. No. 5,446,617, filed 5/13/94, issued 8/29/95).

As shown on page 2 of the above cited Applicant's 132 and 131 Declaration, the Applicant was aware that something was happening as the Applicant could not pay attention in French class in eighth grade in 1962. The applicant goes on record to state that he discovered that the fluorescent lighting at SUNY at Stony Brook was causing a great deal of difficulty and he found it difficult to study, in the period from 1970 to 1973.

As further exemplified in the Applicant's 132 and 131 Declaration, the Applicant read an article in Environment magazine 1978, and the Applicant discovered that he could "feel" the electromagnetic fields from power lines while walking down the street (page 3 of Declaration).

The Applicant, who became a licensed professional engineer in New York State in 1988, and who is competent in electromagnetic field instrumentation, bought a gauss meter to measure the magnetic component of the electromagnetic field on January 2, 1991.

Having known about the problems of electromagnetic fields, the Applicant learned of the existence of magnetic shielding materials on or about September, 1993, and Exhibit E of the Applicant's 132 and 131 Declaration contains copies of the Applicant't handwritten telephone notes at that time.

As stated in the Applicant's 132 and 131 Declaration the Applicant knew at that time that the solution to the problem of electromagnetic fields from fluorescent ballasts was to shield the fluorescent ballast with a magnetic shielding material such as Co-Netic, Netic, or mu-metal. In the fall of 1993, the Applicant obtained technical literature from a firm that sells these materials.

As further stated in the Applicant's 132 and 131 Declaration, (page 7), the Applicant worked diligently on the subject matter of the present invention, in that as noted the Applicant conceived of his invention prior to the May 13, 1994 filing date of U. S. Pat. No. 5,446,617 of Blocher. The Applicant filed a Disclosure Document No. 387,572 on June 26, 1995 (a copy of which is attached as Exhibit "A" to the Applicant's 132 and 131 Declaration), and the Applicant continued to work on the subject matter of the invention, with a subsequent filing of parent patent application on February 12, 1996 under Serial No. 08/600,400.

With respect to the issue of obviousness, the Examiner rejected all of the pending claims; namely Claims 1-16, under U. S. C. §103 over the combination of Blocher and the CO-NETIC references reads on the claim subject matter.

As noted on page 5 of the Applicant's 132 and 131 Declaration filed on August 24, 1999, Blocher '617 electrically grounds the fluorescent ballast, whereas the Applicant's patent application magnetically shields the fluorescent ballast, which solves a different problem. The art of electrically grounding is much different than the art of magnetically shielding an object. See the attached Chapter 109 entitled "Grounding and Shielding", taken from The Engineering Handbook, edited by Richard C. Dorf, published by CRC Press (1996), attached to the Applicant's 132 and 131 Declaration as Exhibit "F". The types of materials used to solve the two problems are different; the equations used for calculations of electrical shielding are far different in form from the equations used in mangnetic shielding calculations.

As further noted on page 6 of the Applicant's 132 and 131 Declaration, the patent of Blocher '617 is for "A ballast circuit and grounding structure for electrically grounding a ballast circuit to a housing and for capturing transmitted RFI and EMI therfrom." (taken from the first sentence of the abstract).

The Applicant's pending application is for "A magnetically shielded fluorescent lamp ballast case for shielding human beings from the negative effects of magnetic fields emanating from a fluorescent lamp is made of a ferromagnetic alloy, or lined on the inside or outside with such foil alloys." (taken from the first sentence of the abstact).

As further noted on page 6 of the Applicant's 132 and 131 Declaration filed on August 24, 1999, in "Grounding and Shielding", page 1182, under the heading "Shielding Materials", it reads:

> As shown in Fig. 109.10, good grounding efficiency for plane waves or electric (high impedance) fields is obtained by using materials of high conductivity such as copper and aluminum. However, low frequency magnetic fields are more difficult to shield because the reflection and absorption loss of non-magnetic materials, such as aluminum, may be insignificant. Consequently, to shield against low-frequency magnetic fields, it may be necessary to use magnetic materials."

Furthermore, such knowledge of magnetic shielding in the electric lighting industry is lacking. The 132 Declaration dated December 29, 1999 of Myron Kahn, a manufacturer of diffusers for lighting fixtures, clearly shows that such knowledge was not known among the fixture manufacturers, manufacturer's representatives, lighting specifiers, lighting designers, architects, engineers, and facility managers whom he was in contact during his time in the lighting business.

As stated by Myron Kahn on page 2 of this 132 Declaration, "In regard to the present above-referenced U. S. Patent Application, in the almost 50 years I have been in the lighting industry, no one ever mentioned to me the problems of electromagnetic fields from fluorescent lighting."

As further noted by Myron Kahn on the bottom of page 2 of his 132 Declaration, "I have read Mr. Karpen's specification for his invention, and he has come up with a very important development, one that has been overlooked by thousands of lighting practitioners."

"The research that he cites from various respected authorities (California Institute of Technology and the Environmental Health Center in Dallas) is persuasive in explaining the damaging effects of electromagnetism on humans who spend hours in such

environments which employ electromagnetic lighting ballasts, In addition to these long term effects, despite the previously unsolved need to correct them, short term effects such as visual discomfort, "dry eye," and other visual problems also persist."

As so elegantly further stated by Myron Kahn on page 3 of his 132 Declaration, "Shielding ballasts will greatly reduce or eliminate the effects of electromagnetic components, for the betterment of the lighted environment."

It is a fact that the invention has never been implemented by the electric lighting industry. If the invention was in fact so obvious, because of its great advantages, it would have been already implemented by now; the fact that those skilled in the art have not implemented the invention, despite its great advantages, indicates that it was not obvious.

The novelty of the idea has been given professional recognition. As stated in the 132 Declaration of the Applicant dated April 24, 2000, three articles describing the invention have been published in trade, technical journals, and in conference proceedings. The first article, entitled "The Need for Electromagnetically Shielded Ballasts", appeared in the November/December 1996 issue of AFE Facilities Engineering. The second article, entitled "Electromagnetic Fields from Fluorescent Ballasts Solved by Shielding", appeared in Energy Engineering, Volume 94, Number 4, in 1997. As stated in Applicant's 132 Declaration dated April 24, 2000, the article was considered controversial by the Editor-in-Chief, Wayne Turner, and he wrote a short editorial about the controversy concerning the effects of electromagnetic

fields from fluorescent ballasts. The third article, entitled "Electromagnetic Fields from Fluorescent Ballasts-Human Factor Effect and How to Solve Them", appeared in the 1998 Excellence in Building Proceedings Conference, October 28-31, of the Energy Efficient Building Association.

All three articles share the same theme: Electromagnetic fields from fluorescent ballasts affect people; there are human factor effects; and the way to solve these problems is to shield the ballast with magnetic shielding materials, as stated in the Applicant's 132 declaration dated April 24, 2000.

In particular, each of the three articles cites two case studies where solid state ballasts were installed in a library and in a school. In each of the cases, there were human factor effects in terms of headaches, eyestrain, fatigue, and tiredness.

The present invention solves a long-felt and unresolved need which is the need to shield fluorescent ballasts in order to eliminate the magnetic component of the electromagnetic field being emitted from the ballast circuitry.

It is not obvious at all that the human factor effects are severe. One first has to eliminate the glare problems from fluorescent lighting by the use of polarizing diffusers, and improve color rendition by using full spectrum fluorescent lamps. As shown in the case study involving the library in Nassau County, there were headaches, eyestrain, fatigue, and tiredness even with the use of the full spectrum lamps and the polarizing diffusers. The remaining human factor effects had to come from the fluorescent ballasts. When the Applicant placed a piece of magnetic shielding material over

his head, the headaches and other effects from the fluorescent ballasts went away.

Moreover, Applicant respectfully relies up Section 2141.02 of the Manual of Patent Examining Procedure, which states that the differences between the prior art and the claims to be examined, must be evaluated not as to the differences themselves, but whether the invention as a whole would be obvious, citing Schenck v. Nortron Corp., 713 F. 2d 782, 218 USPQ, (Fed. Cir. 1983), where the claims directed to a similar but gapless wheel balancer were deemed patentable. In Nortron, the gaplessly continuous piece obviated the need for dampers at seams.

To paraphrase the commentary in MPEP 2141.02, "the prior art" of Blocher "perceived a need for" electrically grounding a fluorescent ballast, whereas the Applicant herein "magnetically shields the fluorescent ballast case".

In the present invention, the Claims are directed to a "magnetically shielded fluorescent ballast case" are analogous to the "gaplessly continuous" piece of the Nortron invention. Therefore, taken as a whole, the Claims are distinguishable over the Blocher reference.

Nortron argued that the invention makes integral what had been made in 4 bolted pieces, contrary, to 35 USC Sec 103, which requires the invention to be considered as a "whole", stating at page 785, column 2, line 36 through page 786, column 1, line 9 as follows:

"Indeed, hard bearing balancers had been known since the early 1920's but had not been successful because of the art-perceived need for mechanisms to dampen resonance. That the means for damping was the one-piece gapless support structure described in the claims detracts in no manner from the contribution to the art made by the inventor...The present invention was a key to the unlocking of a pre-accepted barrier and to the resurrection of hard-bearing balancers, which then replaced the widely-used soft bearing balancers. Nortron was and is at liberty to employ, as it once did, a support formed of separate elements bolted together. That it felt impelled to abandon earlier devices and to employ the unitary structure of the invention is evidence of the latter's value."

The present invention is not anticipated by Blocher, since anticipation is the disclosure of prior art of a thing substantially identical with the claimed invention, which is not the case herein. Anticipation is only invoked if a single prior art reference discloses each and every element that is expressly or inherently found in the claimed invention.

Furthermore, the present invention takes steps that the prior art of Blocher did not disclose. The present invention, as stated earlier, magnetically shields (emphasis added) the fluorescent ballast. Thus, the present invention gives the public what it did not have earlier. This is probative of non-obviousness of a patent, as noted in 35 USCA 1043 and Yamanouchi Pharmaceutical v. Danbury Pharmacal Inc. 21 F Supp 2d 366.

In Symbol Technologies, Inc. v. Opticon, Inc., 17 USPQ 1740-41, the court held as follows:

> "The Federal Circuit has repeatedly held that it is the subject matter as a whole that must be tested under the obviousness standard and not the differences between the subject matter and the prior art. Panduitt Corp. 774 F2d. at 1093 ("The 'difference' may be slight... but it may have been the key to success..."); Hybritech Inc. v. Monoclonal Antibodies, Inc. 802 F.2d 1367, 1383, 231 USPQ 81 (Fed. Cir. 1986). Focusing on the obviousness of substitutions and differences...[is] a legally improper way to simplify the difficult determination of obviousness. cert. den. 480 U. S. 947 (1987).

Therefore, the Applicant's invention to magnetically shield fluorescent lamp ballasts with ferromagnetic materials to shield the ballasts from the magnetic component of electromagnetic fields up to frequencies of about 100 Kilohertz, should be considered as a whole, especially since Applicant solves a problem of what is acknowledged to be a problem, namely the exposure of humans to these frequencies and the disturbing sequelae thereform.

CONCLUSION

It has been shown that the rejections of Claims 1 to 16 do not properly lie and, accordingly, this Board should reverse the Examiner and allow these claims.

Respectfully submitted,

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APPENDIX (37 C.F.R. § 1.192(c)(9))

1. A magnetically shielded fluorescent lamp ballast case for shielding humans from the harmful effects of magnetic fields emitted from a fluorescent lamp ballast, by reducing the magnetic component of the electromagnetic fields emitted from the electrical and electronic components within said fluorescent lamp ballast, particularly the magnetic component of said electromagnetic fields between 60 Hertz and 100 Kilohertz, comprising:

a generally rectangular fluorescent lamp ballast enclosing said electrical and electronic components, said fluorescent lamp ballast case having holes in said fluorescent lamp ballast case to insert external connecting wiring;

said fluorescent lamp ballast being made of a shielding material absorbing the magnetic component of the electromagnetic fields;

said magnetic shielding material being a metal alloy; and,

said magnetic shielding material providing attenuation of magnetic field interference up to 100 Kilohertz.

2. The fluorescent lamp ballast case as in Claim 1 wherein said metal alloy being a ferromagnetic alloy.

3. The fluorescent lamp ballast case as in Claim 2 wherein said ferromagnetic alloy being a soft ferromagnetic alloy.

4. The fluorescent lamp ballast case as in Claim 3 wherein said soft ferromagnetic alloy further comprising an alloy containing at least one element selected from the group consisting of iron, nickel, or cobalt.

5. The fluorescent lamp ballast case as in Claim 3 wherein said soft ferromagnetic alloy being characterized by having an initial magnetic permeability of at least 200 gauss/oersted, preferably above 2,000 gauss/oersted.

6. The fluorescent lamp ballast as in Claim 1 wherein said fluorescent lamp ballast is a core-coil fluorescent lamp ballast.

7. The fluorescent lamp ballast as in Claim 1 wherein said fluorescent lamp ballast is a solid state electronic fluorescent lamp ballast.

8. A magnetically shielded fluorescent lamp ballast case for shielding humans from the harmful effects of magnetic fields emitted from a fluorescent lamp ballast, by reducing the electromagnetic fields emitted from the electrical and electronic components within said fluorescent lamp ballast, particularly the magnetic component of said electromagnetic fields between 60 Hertz and 100 Kilohertz, comprising:

a generally rectangular fluorescent lamp ballast enclosing said electrical and electronic components, said fluorescent lamp ballast having holes in said fluorescent lamp ballast case to insert external connecting wiring;

said fluorescent lamp ballast case being made of steel or aluminum, and lined with a magnetic shielding material,

said magnetic shielding material being a metal foil alloy,

said metal foil alloy being attached with adhesive to said ballast case; and

said magnetic shielding material providing attenuation of magnetic field interference up to 100 Kilohertz.

9. The fluorescent lamp ballast case as in Claim 8 wherein said fluorescent ballast case is lined on the inside with said metal foil alloy.

10. The fluorescent lamp ballast case as in Claim 8 wherein said fluorescent ballast case is lined on the outside with said metal foil alloy.

11. The fluorescent lamp ballast case as in Claim 8 wherein said metal foil alloy being a ferromagnetic alloy.

12. The fluorescent lamp ballast case as in Claim 11 wherein said ferromagnetic alloy being a soft ferromagnetic alloy.

13. The fluorescent lamp ballast case as in Claim 12 wherein said soft ferromagnetic alloy further comprising an alloy containing one or at least one element selected from the group consisting of iron, nickel, or cobalt.

14. The fluorescent lamp ballast case as in Claim 13 wherein said soft ferromagnetic alloy being characterized by having an initial magnetic permeability of at least 200 gauss/oersted, preferably above 2,000 gauss/oersted.

15. The fluorescent lamp ballast as in Claim 8 wherein said fluorescent lamp ballast is a core-coil fluorescent lamp ballast.

16. The fluorescent lamp ballast as in Claim 8 wherein said fluorescent lamp ballast is a solid state electronic fluorescent lamp ballast.